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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/548,014      | 04/12/2000  | Knut Beekman         | WLJ.051             | 6004             |

7590 01/21/2003

Jones Volentine LLP  
12200 Sunrise Valley Drive  
Suite 150  
Reston, VA 20191

EXAMINER

ESTRADA, MICHELLE

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2823

DATE MAILED: 01/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/548,014

Applicant(s)

BEEKMAN ET AL.

Examiner

Michelle Estrada

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 4,6-10 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,6-10 and 13-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

The finality of the Office Action mailed 6/18/02 is withdrawn in view of the new grounds of rejection.

### ***Claim Rejections - 35 USC § 102***

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 4, 13 and 14 rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (5,843,843).

Lee et al. disclose a disclose depositing a metallic layer on an exposed surface of previously deposited insulating layer on a substrate including treating the exposed surface with hydrogen or a gaseous source of hydrogen in the presence of a plasma prior to deposition of the metallic layer (Col. 10, lines 17-26 and Col. 7, lines 50-52) and inherently the hydrogen treatment is such that the x-ray diffraction peak half width on a crystallographic plane of a deposited metallic layer is narrowed (Col. 19, lines 60+) wherein the metallic layer suffers a modification of its crystallographic structure wherein

the metallic layer is aluminum or an aluminum alloy (Col. 11, line 46), because the same materials are treated in the same manner as in the instant invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. as applied to claims 4, 13 and 14 above, and further in view of Ameen et al. (6,143,128).

Lee et al. does not disclose that the plasma is Inductively Coupled Plasma, and that the substrate is placed on a RF biased platen, which is heated.

Ameen et al. disclose hydrogen plasma formed by a coupled RF energy wherein the plasma can be an Inductively Coupled Plasma and the wafer is supported on a heated platen (Col. 3, lines 65-66, Col. 4, line 18 and Col, 4, lines 54-56).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Lee et al. and Ameen et al. to enable formation of the treated surface of Lee et al.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. as applied to claims 4, 13 and 14 above, and further in view of Kondo et al. (6,001,736).

Lee et al. does not disclose that the plasma is supplied by a Reactive Ion Etching process.

Kondo et al. discloses treating an exposed surface with a hydrogen plasma treatment carried out by using RIE plasma (Col. 18, lines 24-34).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Lee et al. and Kondo et al. to achieve the hydrogen plasma treatment and further it is preferable to apply a high frequency bias to a holder supporting the substrate in order to increase the energy and directivity of ions.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. as applied to claims 4, 13 and 14 above, and further in view of Roy et al. (6,025,762).

Lee et al. does not disclose that the metallic layer is deposited as a piezoelectric layer of an acoustic wave device.

Roy et al. discloses depositing a metallic layer, such as aluminum, as a piezoelectric layer of an acoustic wave device (Col. 2, line 66-Col. 3, line3).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Lee et al. and Roy et al. to enable formation of the metallic layer.

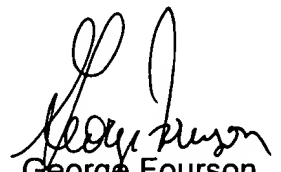
***Response to Arguments***


Applicant argues that Lee et al. and Ameen relate to either etching or the termination of oxides at the bottom of contact holes or where the hydrogen is being used to reduce TiCl to Ti and form volatile hydrogen chloride. However, the additional teachings of the references do not render the teachings relied on invalid. It is sufficient that the same materials are treated in the same manner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 703-308-0729. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 (7724, 3431 and 3432) for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
George Fourson  
Primary Examiner  
Art Unit 2823

  
MEstrada  
January 15, 2003